ABSTRACT

Novel anti-reflective coatings comprising small molecules (e.g., less than about 5,000 g/mole) in lieu of high molecular weight polymers and methods of using those coatings are provided. In one embodiment, aromatic carboxylic acids are used as the chromophores, and the resulting compounds are blended with a crosslinking agent and an acid. Anti-reflective coating films prepared according to the invention exhibit improved properties compared to high molecular weight polymeric anti-reflective coating films. The small molecule anti-reflective coatings have high etch rates and good via fill properties. Photolithographic processes carried out with the inventive material result in freestanding, 110-nm profiles.